

The fusiform green alga *Desmatractum spryii* (Chlorophyta, Chlorococcales): a noteworthy discovery made in a peninsula loch, S.W. Scotland

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Chlorococcalean, or green alga species, belonging to the genus *Desmatractum* West et G.S. West (1902) are solitary cells enclosed by a spindle-shaped 'fusiform' envelope, typically broader in the middle and tapering towards the poles (John & Tsarenko, 2011).

In the course of analysing phytoplankton samples collected as part of the Scottish Environment Protection Agency's ongoing assessment of the ecological status of freshwater lochs in Scotland (Lang *et al.*, 2013), *Desmatractum spryii* Nicholls was found to occur frequently (e.g., 10 – 20 cells per 100 ml sub-sample) in Loch Mochrum during the summer months of 2012. Loch Mochrum lies within the Machars Peninsula of Dumfries and Galloway, south-western Scotland (NGR: NX 30255 53183). The loch has an area of c. 0.9 km², is characterized by relatively low alkalinity (annual mean 6.57 mg L⁻¹ as CaCO₃ in 2012) and meso-eutrophic water chemistry [annual mean total phosphorus (TP) concentration 42.43 µg L⁻¹ in 2012].

Of the nine *Desmatractum* species recognized, only one of these, *D. bipyramidatum* (Chodat) Pascher is currently known to British freshwaters (Lund, 1942; John & Tsarenko, 2011). Hence, this finding of *D. spryii* in a Scottish peninsula loch comprises an entirely new record for the U.K. (D. John, *pers. comm.*).

Desmatractum spryii was originally described from the phytoplankton of several hardwater lakes in Ontario, Canada (Nicholls *et al.*, 1981), and has rarely been documented since, aside from Norway (Reymond & Skogstad, 1983), Germany and the Ukraine (Hegewald & Tsarenko, 1998). *Desmatractum spryii* (Fig. 1a, b) can be unmistakably differentiated from other members of the genus, by distinct ridges present in the equatorial region of the cell wall, a consistent characteristic of the species (Nicholls *et al.*, 1981; Reymond & Skogstad, 1983; Reymond & Kouwets, 1984).

Our observations, together with other published work, imply that *D. spryii* occupies a broad ecological niche of ranging alkalinity and nutrient conditions. Although we may presume that genetically these findings constitute the same species, for now, it seems the bio-indicator value of *D. spryii* remains undefined. Nonetheless this species encompasses a noteworthy discovery and a welcome addition to the British algal flora.

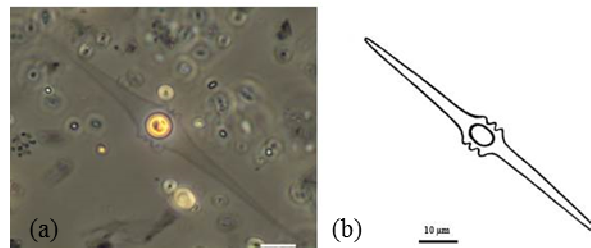


Fig. 1. *Desmatractum spryii*. (a) Photomicrograph of *D. spryii* preserved in Lugol's iodine. Scalebar, 10 µm. (b) Line drawing of *D. spryii*.

ACKNOWLEDGEMENTS

Thanks especially to Professor David John (Natural History Museum, London) for formally verifying the identity of *D. spryii*. We are grateful to Dr Elizabeth Haworth (Freshwater Biological Association) for confirming that no U.K. records of *D. spryii* pre-existed in the Fritsch Collection. We thank SEPA for providing the water chemistry data for Loch Mochrum. We also thank Dr Kevin Murphy (University of Glasgow) for proof-reading an earlier version of the manuscript.

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